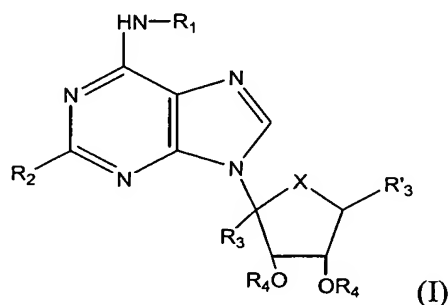


AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A compound of formula (I):

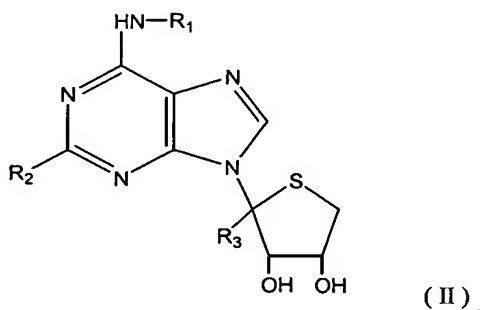


wherein X is sulfur or oxygen; R₁ is hydrogen, C₁-C₅ alkyl, benzyl, halobenzyl, or phenyl C₁-C₅ alkyl; R₂ is hydrogen, halogen, C₁-C₅ alkoxy group, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₅ alkylthio, or [[thio]] mercapto; R₃ and R₃' are same or different and are hydrogen, hydroxy C₁-C₅ alkyl, C₁-C₅ alkoxycarbonyl, or C₁-C₅ alkylaminocarbonyl; and R₄ is hydrogen or C₁-C₅ alkyl; or a pharmaceutically acceptable salt or an optical or stereoisomer isomer thereof.

2. (Canceled)

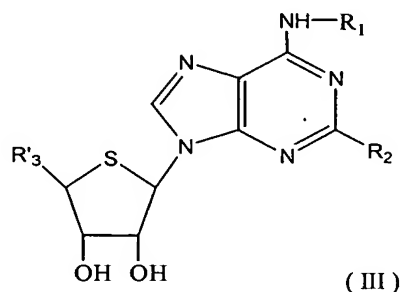
3. (Currently Amended) The compound of claim 1, wherein R₃ and R₃' are different from each other.

4. (Currently Amended) The compound of ~~claim 2~~ claim 1, which has the formula (II) or an optical or stereoisomer isomer thereof:



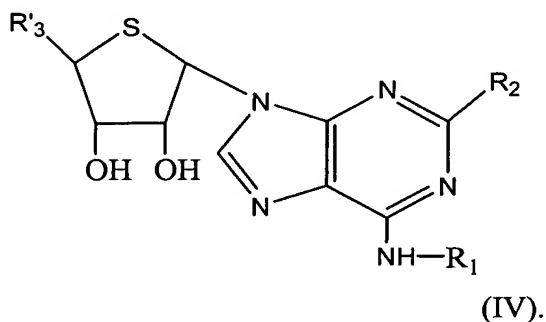
5. (Original) The compound of claim 4, which is (2R,3S,4R)-2-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide.

6. (Currently Amended) The compound of ~~claim 2~~ claim 1, which has the formula (III) or an optical or stereoisomer ~~isomer~~ thereof:



7. (Currently Amended) The compound of claim 6, wherein said compound is selected from the group consisting of (2R,3R,4S,5R)-2-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-5-hydroxymethyltetrahydrothiophene-3,4-diol, (2R,3R,4S,5R)-2-(2-chloro-6-methylaminopurin-9-yl)-5-hydroxymethyl-tetrahydrothiophene-3,4-diol, (2R,3R,4S,5R)-2-(2-chloro-6-methylaminopurin-9-yl)-5-hydroxymethyltetrahydrothiophene-3,4-diol, ~~(2S,3S,4R,5R)-5-(6-amino-2-chloro-purin-9-yl)-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide~~, (2S,3S,4R,5R)-5-(2-chloro-6-methylaminopurin-9-yl)-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide, and (2S,3S,4R,5R)-5-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide.

8. (Currently Amended) The compound of ~~claim 2~~ claim 1 having the general formula (IV) or an optical or stereoisomer ~~isomer~~ thereof:



9. (Original) The compound of claim 8, which is (2S,3R,4S,5R)-2-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-5-hydroxymethyltetrahydrothiophene-3,4-diol.

10. (Previously Presented) A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

11-18. (Canceled).

19. (Previously Presented) A pharmaceutical composition comprising a compound of claim 3 and a pharmaceutically acceptable carrier.

20. (Previously Presented) A pharmaceutical composition comprising a compound of claim 4 and a pharmaceutically acceptable carrier.

21. (Previously Presented) A pharmaceutical composition comprising a compound of claim 5 and a pharmaceutically acceptable carrier.

22. (Previously Presented) A pharmaceutical composition comprising a compound of claim 6 and a pharmaceutically acceptable carrier.

23. (Previously Presented) A pharmaceutical composition comprising a compound of claim 7 and a pharmaceutically acceptable carrier.

24. (Previously Presented) A pharmaceutical composition comprising a compound of claim 8 and a pharmaceutically acceptable carrier.

25. (Previously Presented) A pharmaceutical composition comprising a compound of claim 9 and a pharmaceutically acceptable carrier.

26. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃ adenosine receptor~~ comprising administering to the animal an effective amount of a compound of ~~claim 2~~ claim 1.

27. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃ adenosine receptor~~ comprising administering to the animal an effective amount of a compound of claim 3.

28. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃~~

~~adenosine receptor~~ comprising administering to the animal an effective amount of a compound of claim 4.

29. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃~~ ~~adenosine receptor~~ comprising administering to the animal an effective amount of a compound of claim 5.

30. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃~~ ~~adenosine receptor~~ comprising administering to the animal an effective amount of a compound of claim 6.

31. (Currently Amended) A method of treating breast cancer ~~or preventing~~ in an animal ~~a disease, state, or condition which is responsive to agonizing or antagonizing an A₃~~ ~~adenosine receptor~~ comprising administering to the animal an effective amount of a compound of claim 7.

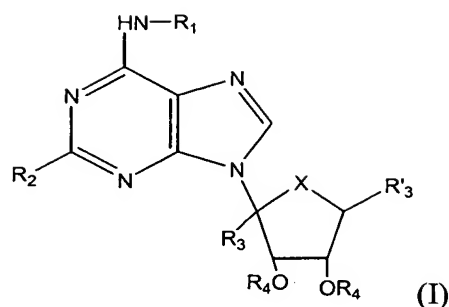
32-42. (Canceled).

43. (New) (2S,3S,4R,5R)-5-(6-amino-2-chloro-purin-9-yl]-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide.

44. (New) A pharmaceutical composition comprising the compound of claim 43 and a pharmaceutically acceptable carrier.

45. (New) A method of treating breast cancer in an animal comprising administering to the animal an effective amount of a compound of claim 44.

46. (New) A compound of the formula (I):



wherein X is (i) oxygen; R₁ is C₁-C₅ alkyl, benzyl, or phenyl C₁-C₅ alkyl; R₂ is hydrogen, halogen, C₁-C₅ alkoxy group, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₅ alkylthio, or mercapto; R₃ and R₃' are same or different and are hydrogen, hydroxy C₁-C₅ alkyl, C₁-C₅ alkoxycarbonyl, or C₁-C₅ alkylaminocarbonyl; and R₄ is hydrogen or C₁-C₅ alkyl; or (ii) X is sulfur; R₁ is hydrogen, C₁-C₅ alkyl, benzyl, halobenzyl, or phenyl C₁-C₅ alkyl; R₂ is hydrogen, halogen, C₁-C₅ alkoxy group, C₂-C₆ alkenyl, C₂-C₆ alkynyl, C₁-C₅ alkylthio, or mercapto; R₃ is hydrogen, hydroxy C₁-C₅ alkyl, C₁-C₅ alkoxycarbonyl, or C₁-C₅ alkylaminocarbonyl; R₃' is hydrogen, C₁-C₅ alkoxycarbonyl, or C₁-C₅ alkylaminocarbonyl; and R₄ is hydrogen or C₁-C₅ alkyl; or a pharmaceutically acceptable salt or an optical or stereoisomer thereof; or a pharmaceutically acceptable salt or an optical or stereoisomer thereof.

47. (New) A pharmaceutical composition comprising a compound of claim 46 and a pharmaceutically acceptable carrier.

48. (New) A method of treating breast cancer in an animal comprising administering to the animal an effective amount of a compound of claim 46.

49. (New) The compound of claim 6, which is (2S,3S,4R,5R)-5-[2-chloro-6-(3-iodobenzylamino)purin-9-yl]-3,4-dihydroxytetrahydrothiophene-2-carboxylic acid methyl amide.

50. (New) A pharmaceutical composition comprising a compound of claim 49 and a pharmaceutically acceptable carrier.

51. (New) A method of treating breast cancer in an animal comprising administering to the animal an effective amount of a compound of claim 49.